IN THE CLAIMS:

The following claim listing includes a minor typographic error correction in claim 1 only. All other claims have been previously presented.

1. (Currently Amended) A soil measuring method that uses a soil measuring apparatus to measure properties of a soil, including the steps of:

obtaining information related to a soil type and a water content of a measurement site;

determining a model based on the soil type and the water content;

acquiring measurement data using a soil sensor based on information related to at least one parameter selected from the soil type and the water content; and

calculating the properties of the soil using said acquired measurement data in the model.

2. (Previously Presented) A soil measuring apparatus, comprising:

detecting means for acquiring measurement data from a soil of a measurement site; and

processing means for calculating soil properties based on said measurement data acquired by said detecting means,

wherein the processing means comprises a model for processing said measurement data, and wherein the model is determined based on information related to a soil type and a water content of a soil of the measurement site.

3. (Previously Presented) The soil measuring apparatus of Claim 2, wherein the processing means further comprises a soil measurement assisting program for determining said model and measurement conditions based on the at least one parameter selected from the soil type and the water content.

4. (Previously Presented) The soil measuring apparatus of Claim 2 or Claim 3, further comprising map creating means for creating a soil map based on soil properties calculated by the processing means and position information of the measurement site.

5. (Previously Presented) A computer readable recording medium comprising a soil measurement assisting program that includes commands for a computer to execute:

a process for establishing a model based on a soil type and a water content of a soil of a

measurement site; and

a process for receiving measurement data from a soil sensor, and for calculating soil properties from the received measurement data based on said model.

6. (Previously Presented) A soil measurement assisting method for a soil measuring apparatus that measures properties of a soil, including the steps of:

acquiring initial measurement data related to a soil type and a water content of a soil of a measurement site; and

determining measurement conditions for further measurements and a model for calculating the properties of the soil, wherein the determining is based on the acquired initial measurement data related to the soil type and the water content and information stored on a storage means on the soil measuring apparatus.

7. (Previously Presented) A soil measurement assisting method for a soil measuring apparatus that measures properties of a soil, including the steps of:

acquiring initial measurement data related a soil type and a water content of a soil of a measurement site; and

determining measurement conditions for further measurements based on the acquired initial measurement data related to the soil type and the water content and information stored on a storage means on the soil measuring apparatus.

8. (Previously Presented) A soil measurement assisting method for a soil measuring apparatus that measures properties of a soil, including the steps of:

acquiring initial measurement data related to a soil type and a water content of a soil of a measurement site; and

determining a model for calculating the properties of the soil based on the acquired initial measurement data related to the soil type and the water content and information stored on a storage means on the soil measuring apparatus.

9. (Previously Presented) A soil measurement assisting device for a soil measuring apparatus that measures properties of a soil, comprising:

storage means for storing soil measurement data correlated with at least one selected from a soil type, information related to a water content of the soil, a model for calculating soil properties, and measurement conditions for obtaining measurement data that will be inputted into the model;

determining means for acquiring initial measurement data related to the soil type and the water content of a measurement site, and for accessing said storage means to determine measurement conditions and the model for calculating the properties of the soil based on the acquired initial measurement data related to the soil type and the water content; and

means for outputting said measurement conditions and the model determined by the determining means.

10. (Previously Presented) A soil measurement assisting device for a soil measuring apparatus that measures properties of a soil, comprising:

storage means for storing soil measurement data correlated with at least one selected from a soil type, information related to a water content of the soil, and measurement conditions for obtaining measurement data that will be inputted into a model for calculating soil properties;

determining means for acquiring initial measurement data related to the soil type and the water content of a measurement site, and for accessing said storage means to determine measurement conditions based on the acquired initial measurement data related to the said soil type and said water content; and

means for outputting said measurement conditions determined by the determining means.

11. (Previously Presented) A soil measurement assisting device for a soil measuring apparatus that measures properties of a soil, comprising:

storage means for storing soil measurement data correlated with at least one selected from a soil type, information related to a water content of the soil, and a model for calculating soil properties;

determining means for acquiring initial measurement data related to the soil type and the water content of a measurement site, and for accessing said storage means to determine the model for calculating the soil properties based on the acquired initial measurement data related to the soil type and the water content; and

means for outputting said model determined by the determining means.

12. (Previously Presented) The soil measurement assisting device of any one of Claim 9 through Claim 11, further comprising a type-of-soil detecting means for calculating said soil type based on the initial measurement data, and for supplying the calculated soil type to the determining means.

13. (Previously Presented) The soil measurement assisting device of any one of Claim 9 through Claim 11, further comprising a water content detecting means for calculating said water content based on the initial measurement data, and for supplying the calculated water content to said determining means.

14. (Previously Presented) The soil measurement assisting device of any one of Claim 9 through Claim 11, further comprising a water content detecting means for calculating said water content based on the initial measurement data and a preliminary soil type estimated from a clay content of the soil of the measurement site, and for supplying the calculated water content to said determining means.

15. (Previously Presented) The soil measurement assisting device of any one of Claim 9 through Claim 11, wherein said soil type is determined from a database that stores previous measurements.

16. (Previously Presented) A soil measurement assisting method for a soil measuring apparatus that measures properties of a soil, comprising the steps of:
     acquiring a first set of measurement data related to optical properties of a measurement site;
     determining a preliminary soil model based on the acquired first set of measurement data and information stored in a storage means on the soil measuring apparatus;
     reading out the preliminary soil model;
     acquiring a second set of measurement data related to chemical components of the soil; and
     modifying the preliminary model based on the second set of measurement data.

17. (Previously Presented) A recording medium that can be read by a computer and that stores a

soil measurement assisting program that includes commands for the computer to execute:

a process that acquires initial measurement data related to a soil type and a water content of a soil of a measurement site,

a process that, based on the acquired initial measurement data, accesses a storage region that stores information related to the soil type, the information related to the water content of the soil, a model for calculating soil properties, and measurement conditions for acquiring further measurement data to be inputted into the model; and

a process that outputs a set of suitable measurement conditions and the model determined based on the initial measurement data related to the soil type and the water content.

18.   (Previously Presented) A recording medium that can be read by a computer and that stores a soil measurement assisting program that includes commands for the computer to execute:

a process that acquires initial measurement data related to a soil type and a water content of a measurement site;

a process that, based on the acquired initial measurement data, accesses a storage region that stores information related to the soil type, the information related to the water content, and measurement conditions for acquiring further measurement data to be inputted into a model for calculating soil properties; and

a process that outputs a set of suitable measurement conditions determined based on the initial measurement data related to the soil type and the water content.

19.   (Previously Presented) A recording medium that can be read by a computer and that stores a soil measurement assisting program that includes commands for the computer to execute:

a process that acquires initial measurement data related to a soil type and a water content of a measurement site;

a process that, based on the acquired initial measurement data, accesses a storage region that stores information related to soil types, water contents of soils, and models for calculating soil properties, and determines, based on the initial measurements data related to the soil type and the water content, a suitable model for calculating soil properties; and

a process that outputs the suitable model.

20. (Previously Presented) The recording medium that can be read by a computer according to any one of Claim 17 ~ Claim 19, further comprising a program that executes at least one process selected from a process that calculates said soil type based on the initial measurement data of a measurement site, and a process that calculates the water content based on the initial measurement data.

21. (Previously Presented) A soil measuring apparatus, comprising:

a soil measuring apparatus main body equipped with detecting means that acquires measurement data from a soil of a measurement site, and processing means that calculates soil properties based on said measurement data; and

a soil measurement assisting device that determines, and then outputs to said soil measuring apparatus main body, a soil type of the measurement site, a model for carrying out processing by said processing means based on information related to a water content of the soil, and measurement conditions for acquiring further measurement data that will be inputted into the model.

22. (Previously Presented) A recording medium that can be read by a computer and that stores at least one selected from a soil type, information related to a water content of a soil, a model for calculating soil properties, and soil measurement data correlated with measurement conditions to be inputted into the model.

23. (Previously Presented) The recording medium of Claim 22, wherein said soil measurement data is further correlated with a name of a measurement object property.

24. (Previously Presented) The recording medium of Claim 22, wherein said soil measurement data is further correlated with a measurement method.

25. (Previously Presented) The recording medium of Claim 22, wherein said soil measurement data is further correlated with a name of a measurement object property and a measurement method.

26. (Previously Presented) A recording medium that can be read by a computer and that stores at least one selected from a soil type, information related to a water content of a soil, soil measurement data for calculating soil properties, and soil correlation information in a constructed state that enables output.

27. (Withdrawn) An application amount control device which, based on soil property values obtained by measurements carried out in real time while moving through a farmland, controls the amount of substances applied to a soil in order to make the soil property values achieve target values, wherein:

the amount of said substances are determined so that said soil property values of the farmland satisfy environmental standards.

28. (Withdrawn) An application amount determining device, comprising:

a measuring device which measures soil property values in real time while moving through a farmland; and

a control device which carries out a determination so that said property values of the farmland will satisfy environmental standards when determining the amount of substances to be applied to a soil to make the soil property values achieve target values based on said measured soil property values.

29. (Withdrawn) A system, comprising:

the application amount determining device of Claim 28; and

an application device which applies said substances based on the results determined by the control device of the application amount determining device.

30. (Withdrawn) An application amount control method in a control device which sends control commands to an application device which applies prescribed substances to a farmland, comprising the steps of:

acquiring soil property values obtained by carrying out measurements in real time while moving through the farmland; and

then, based on the acquired soil property values, controlling the amount of substances

applied to the soil within a range that makes said soil property values of the farmland satisfy environmental standards.

31. (Withdrawn) A recording medium which can be read by a computer and which stores an application amount determining program that includes:

a process which acquires soil property values obtained by measurements carried out in real time while moving through a farmland; and

a process which, based on the acquired soil property values, determines the amount of substances to be applied to the soil within a range that makes said soil property values of the farmland satisfy environmental standards held in storage.

32. (Withdrawn) A farm working determination assisting system, comprising:

means for acquiring a soil properties map via communication means from the outside;

a data base system which records said soil properties map in a data base in correlation with a work history, and which is capable of searching a work history suited to the inputted soil properties map; and

means for creating and outputting a work plan based on the work history suited to said soil properties map.

33. (Previously Presented) A soil model database control system that accesses, updates and reads out stored contents of a soil model database, wherein

the soil model database stores one parameter selected from a soil type, information related to a water content of a soil, soil measurement data for calculating soil properties, and soil correlation information, the soil model database control system comprising:

a function for supplying recorded information in response to a request received from a user, and for updating contents of the soil model database.

34. (Previously Presented) The soil measurement assisting device of Claim 12, further comprising a water content detecting means for calculating the water content based on the initial measurement data and for supplying the calculated water content to said determining means.

35. (Previously Presented) The soil measurement assisting device of Claim 12, further comprising a water content detecting means for calculating the water content based on the initial measurement data and a preliminary soil type estimated from a clay content of the soil of the measurement site, and for supplying the calculated water content to the determining means.

36. (Previously Presented) The soil measurement assisting device of Claim 13, further comprising a water content detecting means for calculating the water content based on the initial measurement data and a preliminary soil type estimated from a clay content of the soil of the measurement site, and for supplying the calculated water content to the determining means.

37. (Previously Presented) The soil measurement assisting device of Claim 12, wherein said soil type is determined from a database that stores previous measurements.

38. (Previously Presented) The soil measurement assisting device of Claim 13, wherein said soil type is determined from a database that stores previous measurements.

39. (Previously Presented) The soil measurement assisting device of Claim 14, wherein said soil type is determined from a database that stores previous measurements.